

AMSER Case of the Month

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45-year-old male with abdominal pain



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Patient Presentation

45-year-old male presents to the emergency department complaining of abdominal pain that had started hours before arrival

Pertinent labs: WBC of 14.5

What Imaging Should We Order?

Select the applicable ACR Appropriateness Criteria

Procedure	Appropriateness Category	Relative Radiation Level
CT abdomen and pelvis with IV contrast	Usually Appropriate	⊕⊕⊕
CT abdomen and pelvis without IV contrast	Usually Appropriate	⊕⊕⊕
MRI abdomen and pelvis without and with IV contrast	Usually Appropriate	○
US abdomen	May Be Appropriate	○
MRI abdomen and pelvis without IV contrast	May Be Appropriate	○
CT abdomen and pelvis without and with IV contrast	May Be Appropriate	⊕⊕⊕⊕
Radiography abdomen	May Be Appropriate	⊕⊕
FDG-PET/CT skull base to mid-thigh	Usually Not Appropriate	⊕⊕⊕⊕
WBC scan abdomen and pelvis	Usually Not Appropriate	⊕⊕⊕⊕
Nuclear medicine scan gallbladder	Usually Not Appropriate	⊕⊕
Fluoroscopy upper GI series with small bowel follow-through	Usually Not Appropriate	⊕⊕⊕
Fluoroscopy contrast enema	Usually Not Appropriate	⊕⊕⊕

This imaging modality was ordered by the ER physician



Findings: (unlabeled)



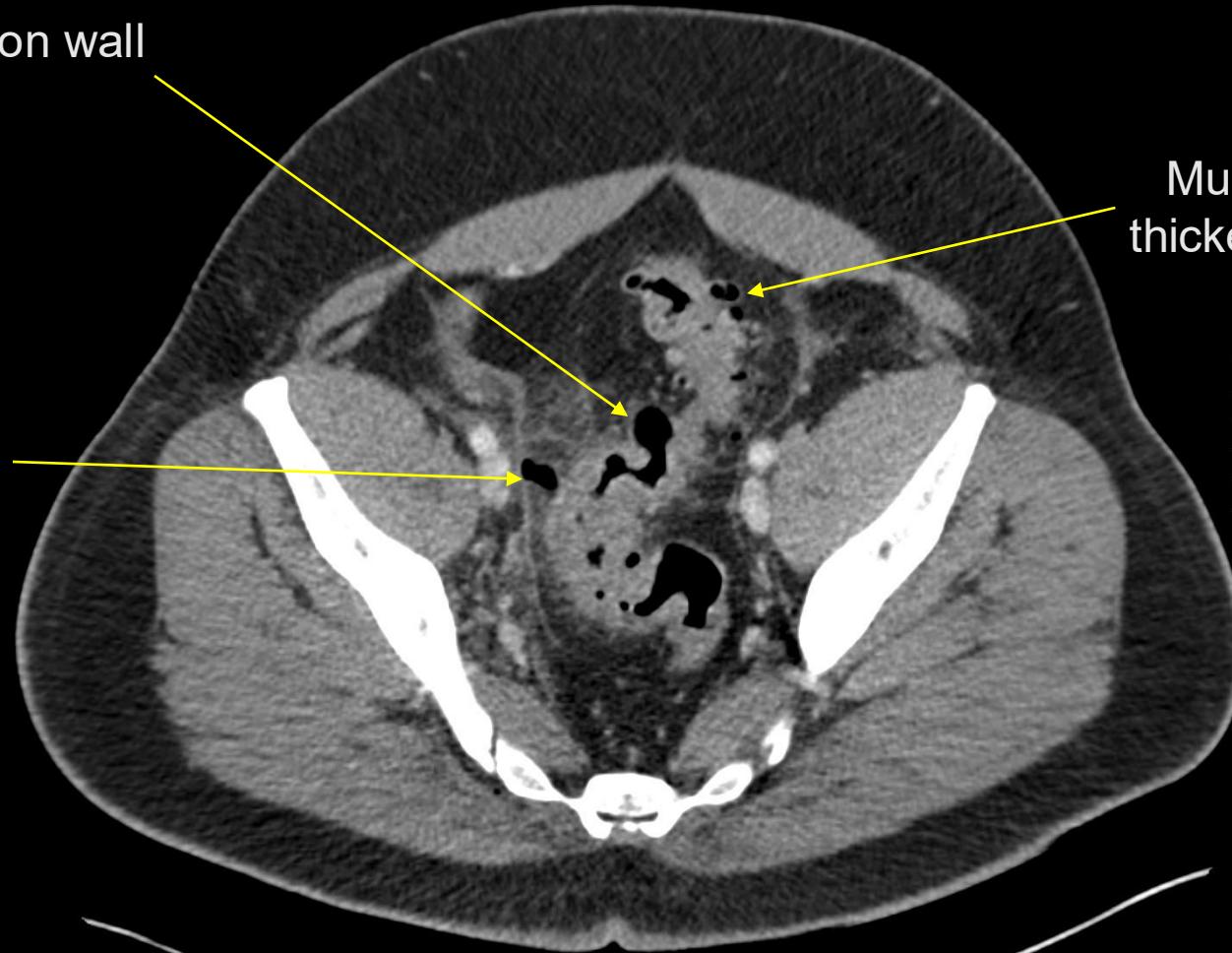
Findings: (unlabeled)



Findings: (labeled)

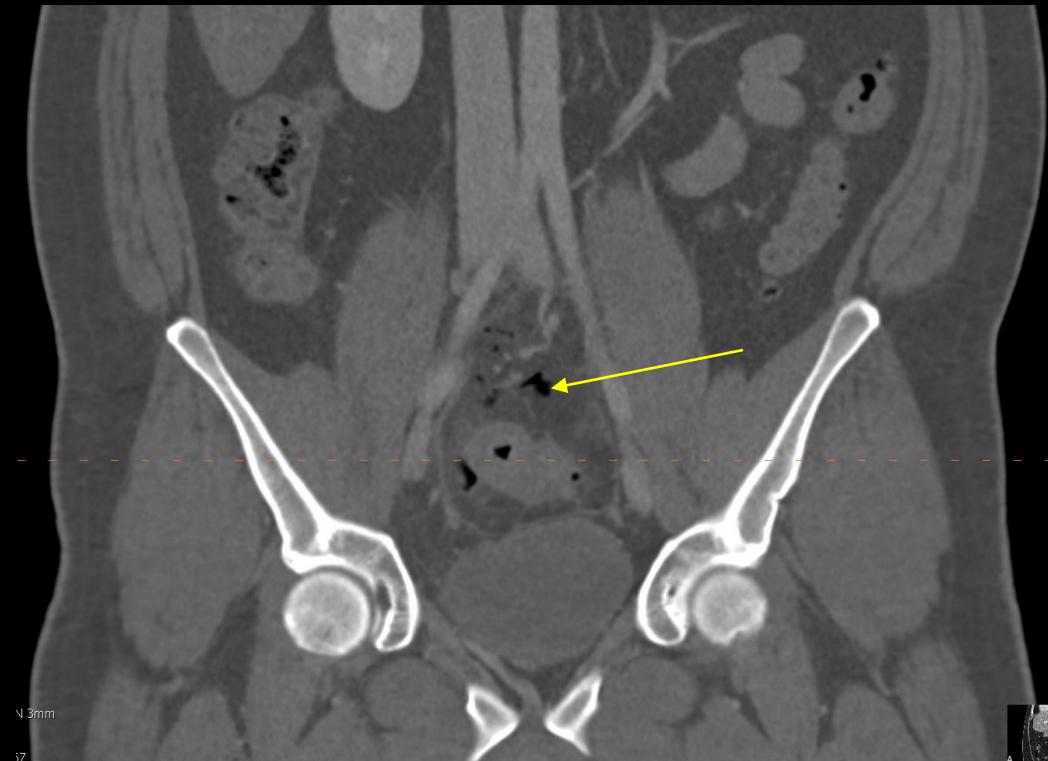
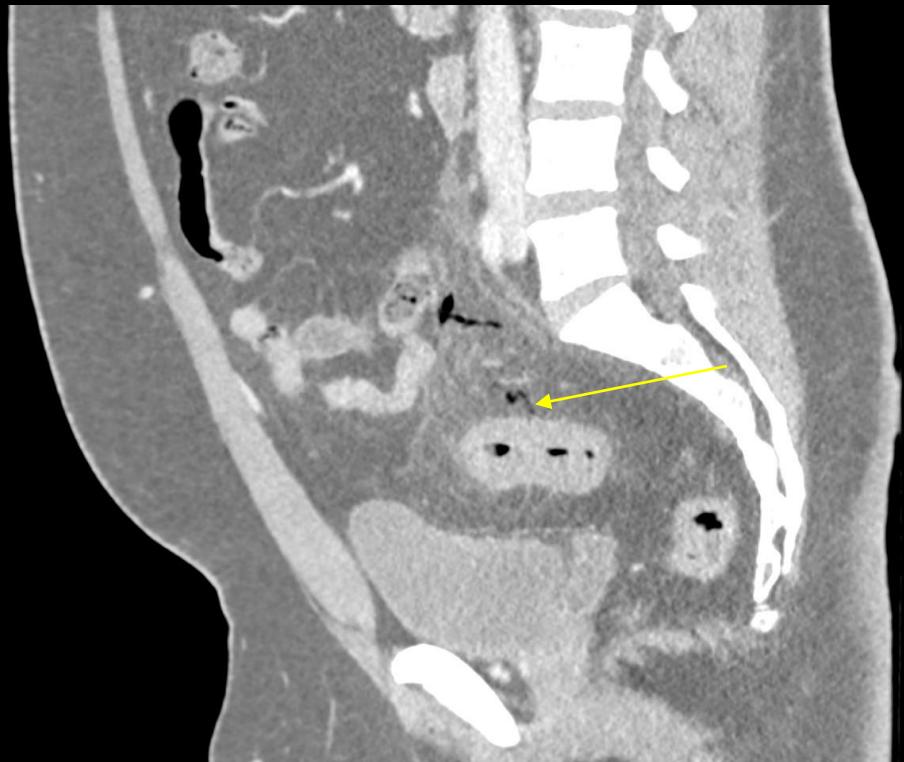
Multiple diverticula with a thickened sigmoid colon wall

Extraluminal Gas and Pericolonic Inflammatory stranding



Multiple diverticula with a thickened sigmoid colon wall

Findings: (labeled)



Extraluminal gas leaking off
the sigmoid colon – suggests
microperforation

Final Dx:

Diverticular Rupture in Sigmoid Colon

Case Discussion

- The patient had findings consistent with diverticulosis. Free air was seen adjacent to the sigmoid colon, indicating a diverticular rupture.²
- More than half of the people in the US have diverticulosis between the ages of 60 and 80, but only 1 in 10 develops it by age 40.³
- Risk factors include a low fiber diet, obesity, and physical inactivity.³
- CT is the gold standard for diagnosing diverticulitis and its complications, including perforation and abscess formation.¹
- Enhancing the sigmoid wall and pericolic fat stranding confirms active inflammation and local perforation.¹

Case Discussion

- The sigmoid colon is the most common site of diverticular rupture due to high intraluminal pressure.⁴
- Early recognition and prompt CT imaging are critical to reduce morbidity and prevent peritonitis and sepsis.¹
- Management depends on the severity: contained perforations may be treated with IV antibiotics, whereas free perforations require surgical intervention.²

References:

1. Onur MR, Akpinar E, Karaosmanoglu AD, Isayev C, Karcaaltincaba M. Diverticulitis: A comprehensive review with usual and unusual complications - insights into imaging. SpringerOpen. November 22, 2016. Accessed October 2, 2025. <https://insightsimaging.springeropen.com/articles/10.1007/s13244-016-0532-3>.
2. Tsetse C, Chaudhry SR, Jabi F, Taylor JN. Perforated cecal diverticulitis with CT diagnosis and Medical Management. Radiology case reports. October 4, 2018. Accessed October 2, 2025. <https://pmc.ncbi.nlm.nih.gov/articles/PMC6176041/>.
3. LeWine H. Diverticulosis and diverticulitis. Harvard Health. October 9, 2024. Accessed October 2, 2025. <https://www.health.harvard.edu/diseases-and-conditions/diverticulosis-and-diverticulitis-a-to-z>.
4. Nallapeta N, Patel K, Farooq U. Diverticulosis. StatPearls. April 16, 2023. Accessed October 2, 2025. <https://www.ncbi.nlm.nih.gov/books/NBK430771/>.